

What's Your Motivation to Be Pregnant? Relations Between Motives for Parenthood and Women's Prenatal Functioning

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Prenatal psychological adjustment is a critical predictor of postnatal maternal adjustment, which, in turn, relates to a child's psychological development. As such, it is important to examine possible correlates of women's psychological functioning during pregnancy. Grounded in self-determination theory (Deci & Ryan, 2000), the present research investigated the link between women's motives for having a child and prenatal maternal psychological adjustment. Specifically, in a sample of 208 pregnant women, we examined the relation between women's intensity (i.e., quantity) and quality of motivation for having a child and both women's social adjustment (i.e., relationship satisfaction) and personal well-being (i.e., vitality and depressive symptoms). Further, we examined psychological need satisfaction as an explanatory mechanism underlying these associations. Results showed that both intensity and quality of motivation related, either directly or indirectly via psychological need satisfaction, to women's personal well-being and relationship satisfaction during pregnancy.

Keywords: motivation, social adjustment, well-being, pregnancy, psychological needs

Many future parents experience pregnancy as an exciting and thrilling period. However, at least for some people, pregnancy also evokes feelings of uncertainty, distress, and anxiety, and the transition to parenthood is accompanied by decreased marital relationship quality and lowered personal well-being (Cowan & Cowan, 2000; Gavin et al., 2005; Mitnick, Heyman, & Smith Slep, 2009). Mothers' prenatal psychological functioning is of critical importance, with a large body of work having shown it to relate to postnatal maternal adjustment. For instance, poor prenatal marital relationships have been found to relate to postpartum maternal (mal)adjustment (e.g., Feeney, Alexander, Noller, & Hohaus, 2003), which, in turn, relates to a child's psychological development (Beck, 1995; Cummings, Keller, & Davies, 2005). Further, prenatal personal ill-being, including depressive symptoms during pregnancy, has been linked to postnatal maladjustment (Beck, 2001).

Because of the critical role of mothers' prenatal functioning in postnatal adjustment, it is important to identify factors involved in pregnant mothers' prenatal functioning. Although a large body of work identified such factors—including quality of the partner relationship, physical stressors, and financial strains—one potentially relevant factor that has remained largely unexplored is parents' motivation for having a child. Although there have been calls to examine the role of motivational processes in the transition to

parenthood (e.g., Nelson, Kushlev, & Lyubomirsky, 2014), and although people are known to differ in their motivation to become a parent (Gauthier, Sénécal, & Guay, 2007), empirical research on this topic is scarce. This is unfortunate, because motivational processes are dynamic and susceptible to change. As such, the study of motivational processes may have practical implications, because they offer an interesting starting point for prevention and intervention programs. Grounded in self-determination theory (SDT; Ryan & Deci, 2000; Vansteenkiste & Ryan, 2013), the present study aimed to examine the association between pregnant women's motivations to become a parent and their prenatal social and personal adjustment.

Motivation and SDT

A variety of motivational frameworks, including expectancy–valence theory (Eccles & Wigfield, 2002) and self-efficacy theory (Bandura, 1989), address individuals' intensity of motivation for engaging in an activity. Yet individuals' motivations for key life decisions such as becoming pregnant may differ not only in intensity or quantity of motivation but also in terms of quality of motivation. That is, whereas some women may fully endorse the decision to become a mother, thereby experiencing a sense of ownership of it, others may feel more pressured and conflicted about the decision. SDT (Deci & Ryan, 2000; Ryan & Deci, 2000) is a macrotheory of human motivation that pays attention to both the quantity and the quality of motivation. Specifically, according to SDT, different types of motives can be placed on a continuum of decreasing autonomy (see Figure 1).

Intrinsic motivation represents the hallmark of volitional motivation, because behaviors are emitted out of pleasure and enjoyment. For example, a woman might decide to become a mother because she anticipates that she will enjoy taking care of children and that raising children will be an interesting challenge. One step down on the SDT continuum is *identified regulation*, an orienta-

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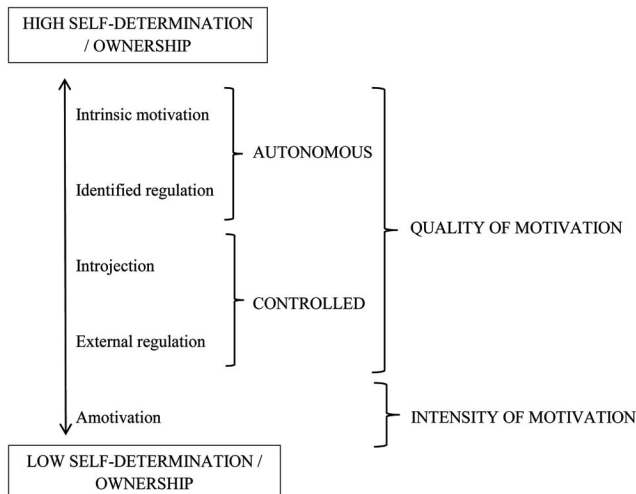


Figure 1. Self-determination continuum.

tion in which people accept and fully endorse the importance of an activity. To illustrate, a woman might decide to have a child because she considers parenthood an important life goal. Ideally, goals that one identifies with become integrated with other life goals and aspirations. A woman might then feel that the goal of becoming a parent fits with other important values, such as being a caring and generative person.

A less self-determined and, hence, more controlled form of regulation is *introjection*. In this case, the activity engagement is driven by internally pressuring forces, such as feelings of shame, anxiety, or self-worth contingencies. For example, a woman might become pregnant because she would only feel worthy as a person if she had children. In addition to pressure from the inside, women may also experience pressures from the outside. In the case of *external regulation*, people perform an activity to meet external pressures. For example, a woman might become pregnant to please her partner or to meet expectations of family members or friends.

Finally, *amotivation* is situated at the very end of the SDT continuum. When people are amotivated, their behavior lacks clear intention, which stands in contrast to the intentional character of motivated behavior. Amotivation may have different origins, including a perceived inability to achieve desired outcomes (i.e., amotivation resulting from feelings of incompetence) or a lack of perceived association between current actions and aspired-to goals (i.e., amotivation resulting from devaluation of outcomes related to behavior). For example, a pregnant woman might anticipate not being able to raise a child or might see little value in becoming a mother altogether.

The assumption of an underlying continuum, as shown in Figure 1, would lead one to expect that the magnitude of the correlations between a particular subscale and the other subscales would decrease progressively and, eventually, grow negative as a function of the distance separating the subscales on the continuum (Ryan & Connell, 1989). On the basis of previous research (e.g., Assor, Vansteenkiste, & Kaplan, 2009; Markland & Tobin, 2010), types of motives that are adjacent on the underlying continuum of autonomy (e.g., introjection and external regulation) would be expected to be more highly correlated with each other than would

motives situated further apart on the continuum (e.g., intrinsic motivation and external regulation).

When the ordered pattern of correlations is confirmed, researchers can create a composite score for quality of motivation, labeled the *relative autonomy index* (RAI; e.g., Ryan & Connell, 1989). This index is calculated by weighing the different regulatory subtypes according to their position on the continuum: $(\text{Intrinsic Motivation} \times 2) + (\text{Identified Regulation} \times 1) - (\text{Introjection} \times 1) - (\text{External Regulation} \times 2)$. The RAI score can be considered an indicator of individuals' overall quality of motivation in that it reflects the presence of autonomous motives relative to the absence of controlled motives. Said differently, in the context of pregnancy, this composite score represents pregnant women's relative ownership of the decision to be pregnant. As can be seen in the RAI formula and in Figure 1, amotivation is not considered a core indicator of the quality of motivation. Instead, it represents individuals' low intensity (i.e., quantity) of motivation (Vansteenkiste, Sierens, Soenens, Luyckx, & Lens, 2009).

Motivation, Social Adjustment, and Well-Being

Dozens of studies in a variety of life domains have examined the social and personal well-being correlates of individuals' intensity and quality of motivation (for a review, see Vansteenkiste, Niemiec, & Soenens, 2010). Most studies have focused on activities engaged in on a regular basis, such as studying, recycling, or exercising. Less attention has been paid to the motives underlying key life decisions (Soenens & Vansteenkiste, 2011). Key life decisions are often preceded by considerable reflection; their consequences are far-reaching, and they are hard to reverse. This is the case for the choice of parenthood (Cowan & Cowan, 2000). Given the critical importance of this decision, it is instructive to gain insight into the reasons why women decide to become pregnant.

Few studies have investigated the role of motivation in the context of parenthood. One exception, Gauthier et al. (2007), found that low amotivation and high quality of motivation to become a parent (i.e., autonomous vs. controlled motivation) were related to positive outcomes, including pregnant women's parental self-efficacy, relational functioning (e.g., marital quality of life), and personal well-being (e.g., positive and negative affect). Further, in a longitudinal study, Gauthier, Guay, Sénécal, and Pierce (2010) found that pregnant women's prenatal autonomous motives were predictive of decreases in postpartum depressive symptoms assessed 2 months after birth. These findings provide preliminary support for the importance of pregnant women's motives in their prenatal and postnatal functioning.

To tap future parents' motives to become a parent, Gauthier et al. (2007) developed the Motivation to Have a Child Scale (MCS), a French self-report questionnaire composed of 19 items designed to assess different SDT-based motives (i.e., intrinsic motivation, identified regulation, introjection, external regulation, and amotivation). Although the MCS yielded promising findings, with the different motives generally following the hypothesized simplex-like structure, external regulation showed an undifferentiated pattern of correlates as it was positively correlated with all other motives (i.e., intrinsic motivation, identified regulation, and introjection). This exception to the pattern requires further investigation. As such, a preliminary goal of the present study was to confirm the internal structure of an adjusted version of the MCS.

Basic Psychological Need Satisfaction as an Explanatory Mechanism

The primary goals of the present study were (a) to examine whether both pregnant women's quantity and quality of motivation would relate to their prenatal adjustment and (b) to shed light on the process accounting for these associations. Within SDT, the satisfaction of individuals' psychological needs for autonomy, relatedness, and competence is said to play a prominent role in motivational processes (Deci & Ryan, 2002). The need for *autonomy* refers to the need to experience choice and psychological freedom. The need for *relatedness* refers to the need to feel loved and close to significant others. The need for *competence* refers to the need to feel confident to achieve desired goals. Consistent with SDT, abundant research has shown that satisfaction of these three psychological needs is related to enhanced social and personal functioning (e.g., Ahmad, Vansteenkiste, & Soenens, 2013; Sheldon, Elliot, Kim, & Kasser, 2001). Interestingly, in a recent review of factors involved in parents' perinatal well-being (Nelson et al., 2014), satisfaction of basic psychological needs was forwarded as a critical factor potentially affecting parents' pre- and postnatal well-being.

Theoretically, need satisfaction is a key mechanism explaining how individuals' motivational functioning is related to well-being. Specifically, high-quality and high-quantity motivation contribute to need satisfaction, because individuals with different types and degrees of motivation may self-select into different activities or extract different levels of need satisfaction from the same activities. As a result, experiences of need satisfaction (vs. frustration) may play an explanatory role in the association between both intensity and quality of motivation and women's prenatal psychological adjustment. A number of previous studies have indeed shown that psychological need satisfaction plays a mediating role in the association between motives and well-being (Chen, Vansteenkiste, Beyers, Soenens, & Van Petegem, 2013; Sheldon & Elliot, 1999).

Gauthier et al. (2007, 2010) provided preliminary support for this hypothesis in the context of parenthood. Specifically, they found that high-quality motivation was related positively to self-efficacy (which can be considered a proxy for competence satisfaction) and negatively to attachment anxiety (which can be considered a proxy for low relatedness satisfaction). In the present study, we used a measure directly tapping the SDT-based constructs of the needs for competence, autonomy, and relatedness. In addition, we formally tested whether the satisfaction, relative to the frustration, of needs would account for (i.e., mediate) the associations between motives to have a child and prenatal adjustment.

The Present Study

The present study had two primary aims. First, we aimed to further investigate associations between both intensity (i.e., amotivation) and quality of motivation to have a child and pregnant women's personal well-being (i.e., prenatal vitality and depressive symptoms) and social adjustment (i.e., relationship satisfaction). It was deemed important to examine relationship satisfaction as an outcome because the decision to have a child is typically taken in the context of a relationship with a partner. As such, this decision

and the motives underlying it are likely to be related to the quality of the relationship. Although previous research has shown that motivation to be in a relationship is related to the quality of the relationship (Blais, Sabourin, Boucher, & Vallerand, 1990), the present study is the first to examine the role of motivation for having a child in relationship satisfaction.

We decided to use the RAI as an overall index of quality of motivation. This index can be used when data provide evidence for an ordered pattern of correlations between the different motives on the self-determination continuum. We chose the RAI because a weighted score was deemed to best represent pregnant women's overall ownership of the decision to be pregnant, which involves consideration of both more volitional and more conflicted and pressured motives. Moreover, statistically speaking, having a single, overall quality index helps to minimize the number of estimated parameters in the model. We expected low scores on amotivation and high scores on quality of motivation to relate to better social adjustment and well-being.

Second, we investigated basic psychological need satisfaction as a possible explanatory variable between motives to have a child and pregnant women's social adjustment and personal well-being. We hypothesized that need satisfaction would (at least partially) mediate the associations between motives to have a child and prenatal adjustment.

In examining these two main research questions, we addressed potential differences between primiparous (i.e., expecting a first child) and multiparous parents. We examined potential differences in terms of (a) the internal structure of the MCS, (b) mean levels (e.g., do primiparous parents score higher or lower on quality of motivation than multiparous parents?), and (c) structural associations between motives and outcomes (e.g., are the associations among motivation, need satisfaction, and well-being more or less pronounced in primiparous parents compared with multiparous parents?). Because past research has not systematically address these potential differences, they were examined in this study in a more explorative fashion.

Method

Participants and Procedure

Participants were 208 pregnant women in their second or third trimester of pregnancy. On the basis of previous research (Gauthier et al., 2010), we expected associations between SDT-based motives, psychological need satisfaction, and well-being to be around .30. Using the G*Power Version 3.1 software for performing statistical power analysis (Faul, Erdfelder, Buchner, & Lang, 2009), a total sample size of 134 participants was found to be sufficient to capture such moderate effect sizes. Hence, the present study ($N = 208$) had sufficient statistical power.

All women were recruited through gynecology departments at general hospitals, private gynecologists, and physiotherapists. Participants had a mean age of 28.32 years ($SD = 3.77$; range: 18–41). Regarding level of education, 24.9% of the participants had earned a university degree, 52.7% had a (nonuniversity) higher education degree, 21.5% had a diploma of secondary education, and 1% had a diploma of primary education. All participating women were in a relationship at the time of the study. Of the 208 women, 97% were married or living with their partner, 1.5% had

been divorced but were living with a new partner, and 1.5% had deliberately chosen to be a single parent at time of conception but were in a new relationship at the time they completed the questionnaires. The initial sample included two mothers who were not in a relationship when filling out the questionnaires; these participants were excluded from the study, because relationship satisfaction was one of the key study variables. Overall, 70.2% of the participants ($n = 146$) indicated that they were primiparous.

Measures

Motives to have a child. To assess intensity and quality of motivation to have a child, the present study made use of an adjusted version of the MCS (Gauthier et al., 2007). Although the original MCS seemed to be a promising measure to assess motives for parenthood, previous results were not fully in line with the simplexlike structure expected on the basis of SDT (Gauthier et al., 2007). As such, a preliminary aim of the present study was to fine-tune the MCS. We made a couple of adaptations to further optimize the instrument. First, items from the MCS tapping external regulation (e.g., “Because having a child will fill a void in my life”) did not seem to really tap pressures originating from the individual’s external environment. Instead, a closer inspection of the external regulation items used suggested that having a child was considered functional to fill a gap in a woman’s life. Because such a deficit-reduction orientation could be regulated by either autonomous or controlled motives, it was logical that this motive displayed a nondifferentiated pattern of correlations with the other motives. As a result, these external regulation items were not included in this study. Second, items from the MCS meant to measure introjection (e.g., “To please my social network—partner, family, friends”) seemed to tap external pressure and would, as such, be better conceived of as items reflecting external regulation. As such, in the present study, the original items for introjection were maintained but were used to tap external regulation. As a result, a new set of introjection items had to be formulated. We ensured that these items would tap directly into internally pressuring motives (e.g., “I would feel failed as a person if I would not have children”).

This adapted version of the MCS was presented to a focus group of 10 volunteering pregnant women (both primiparous and multiparous) who were acquaintances of the researchers but unfamiliar with the theoretical foundations of the study. Participants in the focus group found the items to be clear and felt that all primary reasons for having a child were addressed. The wording of some items was slightly adjusted on the basis of the suggestions provided by this group. The final version of the questionnaire (see the Appendix) includes 20 items rated on a five-point Likert-type scale ranging from 1 (*do not agree at all*) to 5 (*agree very strongly*). Each item is presented with the following introductory stem: “An important reason for me to have a child is . . .” Information about the internal structure and reliability of the questionnaire is presented in the Results section.

Relationship satisfaction. Participants filled out the Relationship Assessment Scale (RAS; Hendrick, 1988), which taps individuals’ satisfaction with their partner relationship. The instrument has seven items (e.g., “To what extent has your relationship met your original expectations?”) rated on a five-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The RAS is a

brief and psychometrically sound measure of relationship satisfaction (Hendrick, 1988). In this study, Cronbach’s alpha was .79.

Vitality. Participants’ feelings of vitality and energy were measured with the Subjective Vitality Scale (SVS; Ryan & Frederick, 1997). The instrument has seven items (e.g., “Currently, I feel so alive I just want to burst”) rated on a five-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach’s alpha in the current study was .90.

Depressive symptoms. Women’s depressive symptoms were measured with the 20-item Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). Using the CES-D, participants rated how often they had experienced cognitive, somatic, and psychological symptoms of depression during the past week (e.g., feeling sad) on a scale from 0 (*rarely or none of the time*) to 3 (*all of the time*). The CES-D has been shown to be a valid and reliable measure of depression in past research (Roberts, Lewinsohn, & Seeley, 1991). In the current sample, Cronbach’s alpha was .87.

Psychological need satisfaction. To capture satisfaction versus frustration of women’s basic psychological needs, we administered the Basic Psychological Needs Scale (BPNS; Chen et al., 2015). The instrument consists of 24 items, with eight items tapping the need for autonomy (e.g., “I feel a sense of choice and freedom in the things I undertake”), eight items tapping the need for relatedness (e.g., “I feel that the people I care about also care about me”), and eight items tapping the need for competence (e.g., “I feel confident that I can do things well”). All items are rated on a five-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Each eight-item subscale has four items tapping satisfaction of the need and four items tapping frustration of the need. Consistent with previous research (e.g., Campbell et al., 2015), we created a composite score for satisfaction versus frustration of all three basic needs. Chen et al. (2015) provided evidence for the psychometric properties of the BPNS (as indexed by a clear factor structure and satisfying reliabilities) as well as for its predictive validity in countries from four different continents. In the current study, Cronbach’s alpha was .89 for the total score of psychological need satisfaction.

Results

Preliminary Analyses

Internal structure of the adapted MCS. To examine the internal structure of the adapted MCS, we performed a confirmatory factor analysis (CFA), thereby following the procedures used by Gauthier et al. (2007), who examined the factor structure of the original MCS. CFA was conducted using Mplus Version 7 (Muthén & Muthén, 2012). The comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR) were used as fit indices. CFI values of .90 or higher indicate reasonable fit, whereas RMSEA values of .08 or lower and SRMR values of .09 or lower indicate acceptable fit (Kline, 2010).

The CFA included five latent factors (i.e., intrinsic motivation, identified regulation, introjection, external regulation, and amotivation), with each factor being indicated by four items. The hypothesized five-factor solution provided a suboptimal fit to the data, $\chi^2(160, N = 208) = 418.07$, CFI = .79, RMSEA = .09,

SRMR = .11. On the basis of the modification indices, three cross-loadings and two within-subscale item correlations were added to the model (see Figure 2), which resulted in an adequate fit to the data, $\chi^2(155, N = 208) = 283.15$, CFI = .90, RMSEA = .06, SRMR = .08. In this model, all items had moderate to high loadings on their intended subscale. Given the satisfactory five-factor solution, scale scores were computed for all constructs by averaging the four items intended to measure each construct. Cronbach's alphas were .79, .69, .71, .82, and .81 for intrinsic motivation, identified regulation, introjection, external regulation, and amotivation, respectively.

Next, a multigroup analysis was conducted comparing a constrained model (in which the loadings were set to be invariant across primiparous and multiparous parents) with an unconstrained model (in which these parameters were freely estimated across number of pregnancies). We used chi-square, CFI, and nonnormed fit index (NNFI) difference tests to compare the models. We assumed equivalence when two of the three following criteria were met (Cheung & Rensvold, 2002; Vandenberg & Lance, 2000): a

nonsignificant difference in chi-square, a difference in CFI beneath .01, and a difference in NNFI beneath .02. As two out of the three criteria were met, $\Delta\chi^2(31, N = 208) = 19.57$, $p > .05$, $\Delta\text{CFI} < .01$, evidence was found that there were no significant differences between the factor structure for primiparous and multiparous mothers.

In a next step, we examined whether the correlations among the motives would follow a simplex pattern whereby motives situated closely on the self-determination continuum were correlated more highly than motives situated further apart. In line with expectations (see Figure 2), the strongest positive correlations were observed between the subscales that were next to each other on the continuum (e.g., between identified regulation and introjection). In contrast, lower and even negative correlations were obtained between concepts far apart on the continuum (e.g., between intrinsic motivation and amotivation). Overall, then, this pattern of correlations followed a simplex structure. One small exception to the pattern was that the negative association between intrinsic motivation and amotivation was not more pronounced than the negative association between identified regulation and amotivation.

Given the evidence for a simplex structure of the adapted MCS subscales, we calculated the RAI by assigning each different regulation subtype a weight in alignment with its location on the self-determination continuum (i.e., +2 for intrinsic motivation, +1 for identified regulation, -1 for introjection, and -2 for external regulation). The RAI score, which does not include amotivation, represents quality of motivation; it can be contrasted with the score for amotivation, which reflects low intensity of motivation.

Next, we inspected the mean scores and standard deviations for motives for becoming a parent. Although scores for amotivation ($M = 1.27$, $SD = 0.53$), external regulation ($M = 1.44$, $SD = 0.67$), and introjection ($M = 2.36$, $SD = 0.90$) were below the midpoint of the scale (range: 1–5), scores for identified regulation ($M = 3.83$, $SD = 0.74$) and intrinsic motivation ($M = 4.47$, $SD = 0.53$) were above the midpoint. Thus, on average, pregnant women in this sample reported high-intensity and high-quality motives for becoming a parent. Still, there was substantial variation around each of the means (with standard deviations ranging from .53 to .90), making it worthwhile to examine associations between the motives, outcome variables, and need satisfaction.

Correlational analyses. Correlations among intensity and quality of motivation for becoming a parent, basic psychological need satisfaction, and the indicators of maternal adjustment are shown in Table 1. As expected, amotivation (i.e., low intensity of motivation) was related negatively to need satisfaction and relationship satisfaction and positively to depressive symptoms. The relationship between amotivation and vitality was nonsignificant. All associations among the RAI (i.e., high-quality motivation), need satisfaction, and each of the adjustment measures were significant and in the expected direction.

Background characteristics. Analyses were conducted to examine differences in the study variables in terms of mothers' age, level of education, and number of pregnancies (with the latter variable representing a categorical distinction between primiparous and multiparous parents). A first multivariate analysis of covariance (MANCOVA) was performed, in which age and education level were entered as covariates and number of pregnancies was entered as a fixed factor, on prediction of the five different types of motives. No significant multivariate effects were obtained

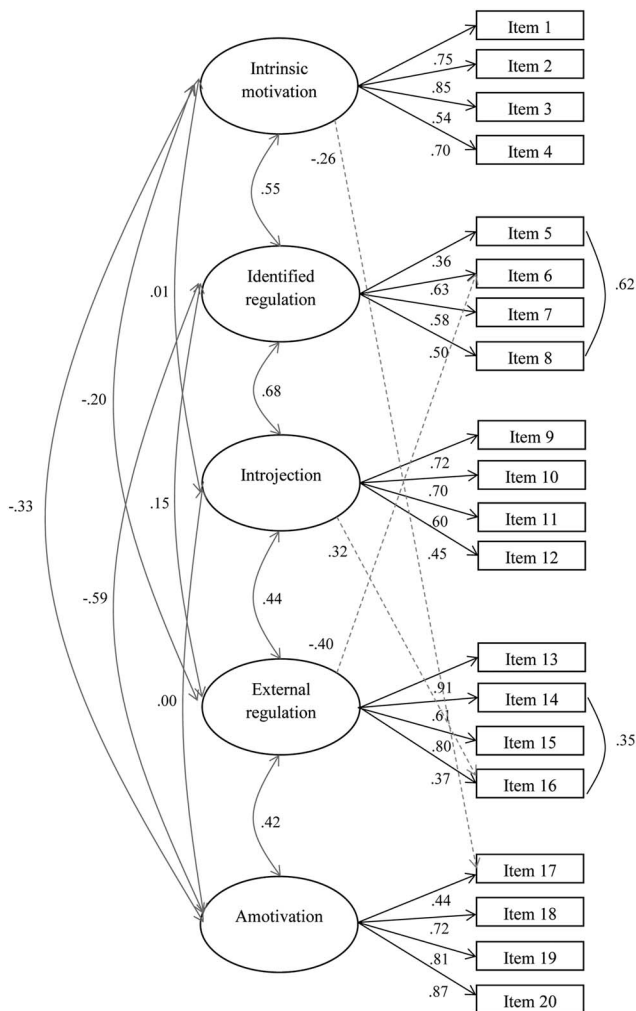


Figure 2. Results of factor analysis on the adapted Motivation to Have a Child Scale. Dashed lines indicate cross-loadings. All correlations above |.20| are significant at $p < .05$.

Table 1
Means, Standard Deviations and Correlations Among Measured Variables

Variable	1	2	3	4	5	6
1. Amotivation	—					
2. Quality of motivation (RAI)	-.49***	—				
3. Need satisfaction	-.37***	.35***	—			
4. Relationship satisfaction	-.39***	.17*	.38***	—		
5. Vitality	-.07	.22***	.23**	.17*	—	
6. Depressive symptoms	.34***	-.28***	-.47***	-.31***	-.49***	—
<i>M</i>	1.27	7.53	2.27	4.66	3.34	0.63
<i>SD</i>	0.53	2.33	0.82	0.40	0.79	0.42

Note. RAI = relative autonomy index.

* $p < .05$. ** $p < .01$. *** $p < .001$.

for age (Wilks's $\lambda = .97$), $F(5, 197) = 1.04$, $p > .05$; educational level (Wilks's $\lambda = .99$), $F(5, 197) = 0.37$, $p > .05$; or number of pregnancies (Wilks's $\lambda = .99$), $F(5, 197) = 0.29$, $p > .05$. A second, similar MANCOVA was performed, now on prediction of basic psychological needs. Again, no significant multivariate effects were obtained for age (Wilks's $\lambda = 1.00$), $F(3, 199) = 0.10$, $p > .05$; educational level (Wilks's $\lambda = .99$), $F(3, 199) = 1.03$, $p > .05$; or number of pregnancies (Wilks's $\lambda = .98$), $F(3, 199) = 1.15$, $p > .05$. A third and final MANCOVA was performed on prediction of the three outcome variables. Once again, no significant multivariate effects were obtained for age (Wilks's $\lambda = .99$), $F(3, 199) = 0.59$, $p > .05$; educational level (Wilks's $\lambda = .99$), $F(3, 199) = 0.98$, $p > .05$; or number of pregnancies (Wilks's $\lambda = .97$), $F(3, 199) = 2.16$, $p > .05$.

Primary Analyses

To examine (a) the simultaneous effects of intensity and quality of motivation on the outcomes and (b) the possibility that need satisfaction would mediate associations of both intensity and quality of motivation with the outcomes, we performed structural equation modeling (SEM) with latent variables. The primary analyses followed the two-step procedure recommended by Anderson and Gerbing (1988). First, a CFA was used to test the quality of the measurement model of all study variables. Second, a series of structural models was tested. The CFI, RMSEA, and SRMR were again used as goodness-of-fit indices. We used the corrected scaled chi-square difference test to compare nested models. Data screening indicated partial nonnormality of a number of indicators, and, therefore, we used the asymptotic covariance matrix as input and inspected the Satorra–Bentler scaled (SBS) chi-square (Satorra & Bentler, 1994).

Measurement model. To model the six latent variables in the measurement model (i.e., intensity of motivation, quality of motivation, basic psychological need satisfaction, relationship satisfaction, vitality, and depressive symptoms), three or four parcels were created for each construct, each consisting of a set of randomly selected items. As for the construct of need satisfaction, the scores for the three needs were used as indicators. No cross-loadings were allowed. The measurement model, SBS $\chi^2(155, N = 208) = 282.90$, CFI = .93, RMSEA = .06, SRMR = .06, had 20 indicators with significant ($p < .001$) and moderate to strong loadings on the six latent factors, ranging from .55 to .91 (mean $\lambda = .78$).

Structural models. We began with examination of a direct-effects model—that is, a model without need satisfaction and including both intensity (i.e., amotivation) and quality (i.e., RAI) of motivation as direct and simultaneous predictors of the three indicators of adjustment. As shown in Table 2, both intensity and quality of motivation had independent associations with maternal adjustment. Specifically, low intensity of motivation was related negatively to relationship satisfaction and showed a marginally significant positive association with depressive symptoms. High quality of motivation related positively to vitality and showed a marginally significant negative association with depressive symptoms. The associations between intensity of motivation and vitality and between quality of motivation and relationship satisfaction were nonsignificant.

In a next step, we estimated a full mediation model (see Table 2). That is, we modeled basic psychological need satisfaction as an intervening variable without allowing direct paths from motivation to the outcomes. In this model, we allowed paths from intensity and quality of motivation to need satisfaction, which, in turn, related to the three adjustment outcomes. Although low intensity of motivation (i.e., amotivation) was related negatively to need satisfaction, quality of motivation was associated positively with need satisfaction. In turn, need satisfaction was associated positively with relationship satisfaction and vitality and was related negatively to depressive symptoms.¹

In a third model (see Table 2), we tested whether the initial significant direct paths from intensity and quality of motivation to the adjustment indicators remained significant after insertion of need satisfaction as an explanatory variable. Although this partial mediation model showed a significantly better fit compared with

¹ In an additional set of structural models, we examined the possibility of alternative directions of effects. Specifically, the model proposed here was compared with (a) a model in which basic psychological need satisfaction predicted motivation for having a child, which, in turn, predicted women's well-being and (b) a model in which women's adjustment during pregnancy predicted need satisfaction, which, in turn, predicted current motives to have a child. Generally speaking, comparison of the models' Akaike information criterion and Bayesian information criterion indices showed an equal or better fit for the sequence as proposed in the present Results section than for the alternative models. Evidently, longitudinal research is needed to more adequately test the direction of effects involved in this model.

Table 2
Results of Estimated Structural Models

Degrees of freedom, fit indices and associations between the study variables of the estimated structural models	Model 1: Direct effects	Model 2: Full mediation	Model 3: Partial mediation
<i>df</i>	109	161	159
SBS χ^2	196.71	308.55	295.68
CFI	.94	.92	.93
RMSEA	.06	.07	.06
SRMR	.06	.07	.06
Amotivation → Relationship satisfaction	-.55*		-.37
Amotivation → Vitality	.10		
Amotivation → Depressive symptoms	.22		
Motivation quality → Relationship satisfaction	-.06		
Motivation quality → Vitality	.33**		.10
Motivation quality → Depressive symptoms	-.24		
Amotivation → Need satisfaction		-.32**	-.29**
Motivation quality → Need satisfaction		.28**	.29**
Need satisfaction → Relationship satisfaction		.50***	.29*
Need satisfaction → Vitality		.30***	.25**
Need satisfaction → Depressive symptoms		-.58***	-.57***

Note. *df* = degree of freedom; SBS = Satorra-Bentler scaled; CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

* $p < .05$. ** $p < .01$. *** $p < .001$.

the full mediation model, SBS $\chi^2(2, N = 208) = 12.87, p < .01$, none of the initial direct paths remained significant.

Next, a multigroup analysis of the partial mediation model was conducted, comparing a constrained model (in which the structural paths were set to be invariant across primiparous and multiparous parents) with an unconstrained model (in which these parameters were freely estimated across both types of parents). Again, we used chi-square, CFI, and NNFI difference tests to compare the models. As two out of the three criteria were met ($\Delta CFI < .01$, $\Delta NNFI < .02$), evidence was found that associations in the final structural model did not differ between the primiparous and the multiparous parents. The same findings were obtained even when each path was tested independently.

In a final step, we tested whether the indirect paths from both intensity and quality of motivation to the maternal outcome variables via basic psychological need satisfaction were significant (Preacher & Hayes, 2008). The indirect paths from intensity

($\beta = -.16, p < .05$) and quality ($\beta = .14, p < .05$) of motivation to relationship satisfaction, from intensity ($\beta = -.09, p < .01$) and quality ($\beta = .08, p < .05$) of motivation to vitality, and from intensity ($\beta = .18, p < .01$) and quality ($\beta = -.16, p < .05$) of motivation to depressive symptoms were significant. In short, need satisfaction was found to play a mediating role in the association between both intensity and quality of motivation for having a child and the outcomes (see Figure 3).

Discussion

The decision to become pregnant is a key life decision with far-reaching consequences for both individuals and their social roles (Cowan & Cowan, 2000). Although most pregnant women are highly motivated to become a mother, they may differ in the degree of ownership they experience when making this decision. That is, whereas some women may be truly autonomous in their

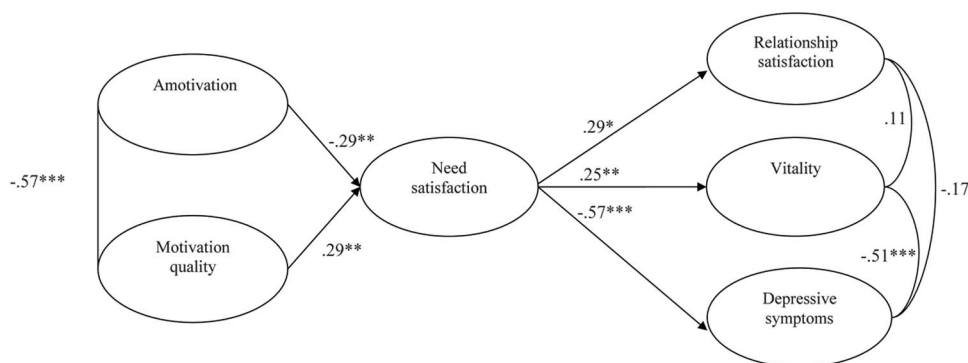


Figure 3. Mediation model (for ease of presentation, nonsignificant paths are not shown). Fit indices: $\chi^2(159, N = 208) = 295.68$; comparative fit index = .93; root mean square error of approximation = .06; standardized root mean square residual = .06. * $p < .05$. ** $p < .01$. *** $p < .001$.

decision to be pregnant, thereby perceiving it as representing an identity they want to fully embrace and deepen in their lives, others may feel more conflicted and less ready for this major life change. SDT, a broadband theory of human motivation, is ideally suited to shed light on these individual differences, because it allows for an examination of both women's quantity and quality of motivation to be pregnant. The main goals of the present study were to investigate relations between pregnant women's intensity and quality of motivation for having a child and their prenatal social adjustment (i.e., relationship satisfaction) and personal well-being (i.e., vitality and depressive symptoms) and to investigate the processes underlying these hypothesized associations.

Association Between Motives to Be Pregnant and Adjustment

On the basis of SDT, different motives to have a child can be discerned, with these motives reflecting meaningful differences in women's intensity (i.e., quantity) and quality of motivation (see Figure 1). Because these motives can be ordered on a continuum of self-determination, or ownership, the correlations between the motives should form a simplex pattern (Deci & Ryan, 2008). As the original MCS violated the assumption of a simplex pattern, we made several adaptations to the questionnaire. These adjustments appeared to be successful. That is, whereas the original external regulation items violated the assumption of a simplex structure, this was no longer the case for the adjusted external regulation items. Also, the newly generated scale tapping introjection, reflecting an intrapersonal pressure to become pregnant, correlated in meaningful ways with the other assessed motives.

Interestingly, this factor structure was found to be invariant across primiparous and multiparous parents, suggesting that the measure could be used for both populations. In terms of mean levels, it appeared that the majority of women fully endorsed the decision to be pregnant irrespective of whether they were having their first child or already had children. The high scores on autonomous motives and the low scores on controlled motives and amotivation are likely attributable to the fact that becoming pregnant constitutes a key life decision that is usually preceded by considerable introspection, partner dialogue, and reflection. Presumably, low quality of motivation or even an absence of motivation may be more prevalent within specific groups of women who become pregnant in conditions that leave less room for deliberate reflection—such as women who are part of a low-income couple or are teenagers, who more often have unplanned pregnancies. Women who become pregnant unintentionally might be motivated to continue with the pregnancy, but this decision might be more about not wanting to have an abortion than it is about being motivated to stay pregnant. Future research investigating such specific groups of women might be very interesting. Alternatively, the high mean levels for quality of motivation may also be partially explained by self-presentational bias or the timing of the study. When pregnant women are asked about their motivation to have a child during the second or third trimester of pregnancy, they may already have had the time to process the changes that they are about to experience (although they may have been blindsided at first, especially if the pregnancy was unplanned). For these reasons, future research might investigate motives for having a child during the first trimester of pregnancy

and might complement women's self-reports with alternative sources of information, such as partners' reports of their pregnant partners' motivations and psychological functioning. Inclusion of fathers in future research might also be interesting as a way to investigate their motives for becoming a parent. Further, given that the present study only included mothers who were in a relationship, future research would do well to include mothers who are not in a stable relationship.

The main aim of the present study was to examine relations between pregnant women's intensity and quality of motivation for having a child and various indicators of psychological functioning. Through SEM, we found that both intensity and quality of motivation mattered regarding women's prenatal psychological adaptation. Specifically, extending previous work by Gauthier et al. (2007, 2010), the present study found that low intensity of motivation was linked to low relationship satisfaction and (marginally significantly) to depressive symptoms. Quality of motivation was related to vitality and (marginally significantly) to lower depressive symptoms. Although these findings are of interest, caution is warranted as all measures were self-reports. The choice of self-reports was informed by the fact that all variables included in this study dealt with women's internal representations, and women themselves are the most accurate reporters of such internal experiences. Because of this choice, however, common-method variance may have led to an overestimation of associations in the model.

Further, although the findings were in the expected direction, the effect sizes were modest. Obviously, pregnant women's psychological functioning may be affected by many other factors, some of which have to do with the physical stressors associated with pregnancy (Cowan & Cowan, 2000) or with their functioning in other life domains (e.g., work-related stress). Also, it is possible that the critical role of motivational differences manifests especially when the child is born and when mothers are facing the challenge of this major transition in their lives. Perhaps mothers who are more autonomously motivated cope better with the challenges of child birth, build a stronger and more secure bond with their newborn child, or rely on different parenting practices. Thus, it can be hypothesized that high intensity and high quality of motivation are important predictors of postnatal maternal well-being and child development, issues that await further testing in longitudinal research.

Psychological Need Satisfaction as an Explanatory Mechanism

A second important aim of the current research was to examine whether basic psychological need satisfaction would account for the association between motives for having a child and both social adjustment and personal well-being. In line with previous research (Chen et al., 2013), need satisfaction mediated the relationship between motivation and the outcome variables. However, because of the cross-sectional design of the study, our findings do not provide a sufficient base for inferring direction of effects. The possibility exists, for instance, that women's adjustment during pregnancy predicted need satisfaction, which, in turn, predicted current motives for having a child. Cross-lagged longitudinal research is needed to determine causality in relations between inten-

sity and quality of motivation, psychological need satisfaction, and women's psychological adjustment.

Further, future longitudinal research could examine whether these motives also relate to experiences of psychological need satisfaction in the mother-child relationship once a child is born. Of course, it is possible that experienced need satisfaction also feeds back into mothers' motives to rear their children, such that greater levels of need satisfaction in the mother-child relationship lead mothers to better enjoy and willingly commit to their new role. Alternatively, experiences of need frustration may lead mothers to consider their mother role more as a daunting duty or an obligation that requires more energy from them than they can afford. It would be interesting for future research to operationalize satisfaction of basic psychological needs specifically with regard to parenthood. For example, items might read as follows: "I can do things with my child that I really want," "I feel connected to my baby," and "I feel competent about my skills with my baby" for autonomy, relatedness, and competence, respectively. The use of a specific measure tapping maternal basic psychological need satisfaction might further strengthen the associations between motives for having a child, need satisfaction, and outcome variables.

Practical Implications

The present findings may have important implications for prevention and intervention purposes. If future research provides evidence of the importance of parents' motives to have a child for their postnatal psychological functioning, the screening of future parents' motives for becoming pregnant may be of critical importance. Within prevention programs, counselors might use parents' motivational scores as a starting point for an in-depth discussion of their motives so as to increase their awareness and self-reflection about this key life decision. Prevention studies could then show whether such promoted self-reflection ultimately leads parents to more willingly commit to their new role, to the benefit of themselves, their partners, and children.

Further, because basic psychological need satisfaction plays an important role in the link between parental motivation and psychological adjustment, psychological needs could function as a key mechanism that could be addressed in interventions and in individual counseling. Specifically, parents could be advised to organize their daily life around engagement in need-satisfying activities while at the same time avoiding need-frustrating experiences. Apart from having raised awareness regarding selection of their daily activities, parents might also try to handle their daily need-frustrating experiences differently. For instance, through a more mindful approach (Coatsworth et al., 2015), parents might interpret and cope differently with need-frustrating experiences such that those experiences do not necessarily translate into reduced well-being.

Conclusion

The present research provided evidence for the importance of pregnant women's motives for having a child in their prenatal psychological functioning. Women who experience a stronger sense of ownership (rather than pressure or a total lack of motivation) during their pregnancy fare better in terms of psychological need satisfaction, personal well-being, and relationship quality.

Further longitudinal research is needed to examine whether these prenatal benefits associated with high-quality motivation for pregnancy forecast postnatal parental well-being, quality of parent-child interactions, and even children's healthy development.

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Appendix

Items Per Subscale from the Adapted Motivation to Have a Child Scale

Adapted Motivation to Have a Child Scale

Items are rated on a five-point Likert-type scale ranging from 1 (*do not agree at all*) to 5 (*agree very strongly*). Each item is presented with the following introductory stem: "An important reason for me to have a child is . . ."

Intrinsic Motivation

1. For the pleasure of having a child.
2. For the pleasure of seeing my child grow.
3. For the satisfying feeling of good moments with my child.
4. For the pleasure of contributing to the development of my child (birth, childhood, adolescence, etc.).

Identified Regulation

5. Having a child is a way to realize my life plan.
6. Having a child is part of the life style I chose.
7. Having a child is one of the valuable ways to realize my goals.
8. Having a child allows me to realize my most important life objectives.

Introjected Regulation

9. Only then I can really feel like a woman.
10. I can only feel proud of myself when I become a mother.

11. I would feel failed as a person if I would not have children.
12. I want to prove to myself that I can handle motherhood.

External Regulation

13. To fulfil the expectations of others (partner, family, friends).
14. To please my social network (partner, family, friends).
15. To feel accepted by my social network (partner, family, friends).
16. It is expected of a woman that she becomes a mother.

Amotivation

17. I don't know. Increasingly I think that I don't have what it takes to raise a child.
18. I don't know it anymore. People in my social network seem more happy with this event than me.
19. I sometimes wonder why I became pregnant.
20. I used to have good reasons for having a child, but now I wonder why.

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